

Plamen Ch Ivanov

List of Publications by Year in descending order

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138
papers

26,074
citations

28274

55
h-index

17105

122
g-index

144
all docs

144
docs citations

144
times ranked

15203
citing authors

#	ARTICLE	IF	CITATIONS
1	PhysioBank, PhysioToolkit, and PhysioNet. <i>Circulation</i> , 2000, 101, E215-20.	1.6	10,241
2	Fractal dynamics in physiology: Alterations with disease and aging. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 2466-2472.	7.1	1,731
3	Multifractality in human heartbeat dynamics. <i>Nature</i> , 1999, 399, 461-465.	27.8	1,474
4	Effect of trends on detrended fluctuation analysis. <i>Physical Review E</i> , 2001, 64, 011114.	2.1	1,070
5	Effect of nonstationarities on detrended fluctuation analysis. <i>Physical Review E</i> , 2002, 65, 041107.	2.1	792
6	Network physiology reveals relations between network topology and physiological function. <i>Nature Communications</i> , 2012, 3, 702.	12.8	548
7	Scaling behaviour of heartbeat intervals obtained by wavelet-based time-series analysis. <i>Nature</i> , 1996, 383, 323-327.	27.8	477
8	From $1/f$ noise to multifractal cascades in heartbeat dynamics. <i>Chaos</i> , 2001, 11, 641-652.	2.5	431
9	Quantifying cross-correlations using local and global detrending approaches. <i>European Physical Journal B</i> , 2009, 71, 243-250.	1.5	380
10	Magnitude and Sign Correlations in Heartbeat Fluctuations. <i>Physical Review Letters</i> , 2001, 86, 1900-1903.	7.8	361
11	Statistical physics and physiology: Monofractal and multifractal approaches. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 270, 309-324.	2.6	323
12	Network Physiology: How Organ Systems Dynamically Interact. <i>PLoS ONE</i> , 2015, 10, e0142143.	2.5	311
13	Behavioral-Independent Features of Complex Heartbeat Dynamics. <i>Physical Review Letters</i> , 2001, 86, 6026-6029.	7.8	305
14	Quantifying signals with power-law correlations: A comparative study of detrended fluctuation analysis and detrended moving average techniques. <i>Physical Review E</i> , 2005, 71, 051101.	2.1	254
15	Common scale-invariant patterns of sleep-wake transitions across mammalian species. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004, 101, 17545-17548.	7.1	231
16	Stochastic feedback and the regulation of biological rhythms. <i>Europhysics Letters</i> , 1998, 43, 363-368.	2.0	223
17	Sleep-wake differences in scaling behavior of the human heartbeat: Analysis of terrestrial and long-term space flight data. <i>Europhysics Letters</i> , 1999, 48, 594-600.	2.0	223
18	Scale Invariance in the Nonstationarity of Human Heart Rate. <i>Physical Review Letters</i> , 2001, 87, 168105.	7.8	222

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19	Effect of nonlinear filters on detrended fluctuation analysis. <i>Physical Review E</i> , 2005, 71, 011104.	2.1	215
20	Phase transitions in physiologic coupling. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 10181-10186.	7.1	199
21	Metal-insulator transition in chains with correlated disorder. <i>Nature</i> , 2002, 418, 955-959.	27.8	192
22	When human walking becomes random walking: fractal analysis and modeling of gait rhythm fluctuations. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2001, 302, 138-147.	2.6	188
23	Focus on the emerging new fields of network physiology and network medicine. <i>New Journal of Physics</i> , 2016, 18, 100201.	2.9	176
24	Dynamics of sleep-wake transitions during sleep. <i>Europhysics Letters</i> , 2002, 57, 625-631.	2.0	165
25	Characterization of sleep stages by correlations in the magnitude and sign of heartbeat increments. <i>Physical Review E</i> , 2002, 65, 051908.	2.1	161
26	Magnitude and sign scaling in power-law correlated time series. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2003, 323, 19-41.	2.6	160
27	A stochastic model of human gait dynamics. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2002, 316, 662-670.	2.6	157
28	Entropy measures, entropy estimators, and their performance in quantifying complex dynamics: Effects of artifacts, nonstationarity, and long-range correlations. <i>Physical Review E</i> , 2017, 95, 062114.	2.1	151
29	Common scaling patterns in intertrade times of U. S. stocks. <i>Physical Review E</i> , 2004, 69, 056107.	2.1	149
30	Non-random fluctuations and multi-scale dynamics regulation of human activity. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 337, 307-318.	2.6	146
31	Levels of complexity in scale-invariant neural signals. <i>Physical Review E</i> , 2009, 79, 041920.	2.1	143
32	Endogenous circadian rhythm in an index of cardiac vulnerability independent of changes in behavior. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004, 101, 18223-18227.	7.1	132
33	Modeling long-range cross-correlations in two-component ARFIMA and FIARCH processes. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2008, 387, 3954-3959.	2.6	130
34	Scale-Independent Measures and Pathologic Cardiac Dynamics. <i>Physical Review Letters</i> , 1998, 81, 2388-2391.	7.8	126
35	Endogenous circadian rhythm in human motor activity uncoupled from circadian influences on cardiac dynamics. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 20702-20707.	7.1	119
36	Power-law autocorrelated stochastic processes with long-range cross-correlations. <i>European Physical Journal B</i> , 2007, 56, 47-52.	1.5	118

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37	Correlation differences in heartbeat fluctuations during rest and exercise. <i>Physical Review E</i> , 2002, 66, 062902.	2.1	113
38	The suprachiasmatic nucleus functions beyond circadian rhythm generation. <i>Neuroscience</i> , 2007, 149, 508-517.	2.3	109
39	Effect of extreme data loss on long-range correlated and anticorrelated signals quantified by detrended fluctuation analysis. <i>Physical Review E</i> , 2010, 81, 031101.	2.1	109
40	Plasticity of brain wave network interactions and evolution across physiologic states. <i>Frontiers in Neural Circuits</i> , 2015, 9, 62.	2.8	105
41	Application of statistical physics to heartbeat diagnosis. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 274, 99-110.	2.6	102
42	Fractal scale-invariant and nonlinear properties of cardiac dynamics remain stable with advanced age: a new mechanistic picture of cardiac control in healthy elderly. <i>American Journal of Physiology - Regulatory Integrative and Comparative Physiology</i> , 2007, 293, R1923-R1937.	1.8	101
43	Scale invariance and universality: organizing principles in complex systems. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2000, 281, 60-68.	2.6	100
44	Steady-State Visual Evoked Potentials and Phase Synchronization in Migraine Patients. <i>Physical Review Letters</i> , 2004, 93, 038103.	7.8	100
45	Aging Effects on Cardiac and Respiratory Dynamics in Healthy Subjects across Sleep Stages. <i>Sleep</i> , 2010, 33, 943-955.	1.1	97
46	Stratification Pattern of Static and Scale-Invariant Dynamic Measures of Heartbeat Fluctuations Across Sleep Stages in Young and Elderly. <i>IEEE Transactions on Biomedical Engineering</i> , 2009, 56, 1564-1573.	4.2	93
47	Multiscale aspects of cardiac control. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 344, 685-704.	2.6	89
48	Influence of corruption on economic growth rate and foreign investment. <i>European Physical Journal B</i> , 2008, 63, 547-550.	1.5	88
49	Scaling and universality in heart rate variability distributions. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1998, 249, 587-593.	2.6	82
50	Scaling in nature: from DNA through heartbeats to weather. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 273, 46-69.	2.6	79
51	Delay-correlation landscape reveals characteristic time delays of brain rhythms and heart interactions. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2016, 374, 20150182.	3.4	79
52	Network Physiology: Mapping Interactions Between Networks of Physiologic Networks. <i>Understanding Complex Systems</i> , 2014, , 203-222.	0.6	78
53	Fractionally integrated process with power-law correlations in variables and magnitudes. <i>Physical Review E</i> , 2005, 72, 026121.	2.1	74
54	Quantitative relations between corruption and economic factors. <i>European Physical Journal B</i> , 2007, 56, 157-166.	1.5	64

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55	Network Physiology of Exercise: Vision and Perspectives. <i>Frontiers in Physiology</i> , 2020, 11, 611550.	2.8	64
56	Modeling transient correlations in heartbeat dynamics during sleep. <i>Europhysics Letters</i> , 2003, 62, 147-153.	2.0	61
57	The New Field of Network Physiology: Building the Human Physiome. <i>Frontiers in Network Physiology</i> , 2021, 1, .	1.8	61
58	Scale-Invariant Aspects of Cardiac Dynamics Across Sleep Stages and Circadian Phases. <i>IEEE Engineering in Medicine and Biology Magazine</i> , 2007, 26, 33-37.	0.8	56
59	Detection of obstructive sleep apnea from cardiac interbeat interval time series. , 0, , .		55
60	Cross-correlation of instantaneous phase increments in pressure-flow fluctuations: Applications to cerebral autoregulation. <i>Physical Review E</i> , 2006, 73, 031915.	2.1	55
61	Systems with correlations in the variance: Generating power law tails in probability distributions. <i>Europhysics Letters</i> , 2000, 50, 711-717.	2.0	54
62	Variance fluctuations in nonstationary time series: a comparative study of music genres. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 336, 585-594.	2.6	54
63	Noise Effects on the Complex Patterns of Abnormal Heartbeats. <i>Physical Review Letters</i> , 2001, 87, 068104.	7.8	52
64	Spurious detection of phase synchronization in coupled nonlinear oscillators. <i>Physical Review E</i> , 2006, 73, 065201.	2.1	52
65	Scale-invariant truncated Lévy process. <i>Europhysics Letters</i> , 2000, 52, 491-497.	2.0	51
66	Asymmetry and basic pathways in sleep-stage transitions. <i>Europhysics Letters</i> , 2013, 102, 10008.	2.0	48
67	Major component analysis of dynamic networks of physiologic organ interactions. <i>Journal of Physics: Conference Series</i> , 2015, 640, 012013.	0.4	46
68	Dynamic network interactions among distinct brain rhythms as a hallmark of physiologic state and function. <i>Communications Biology</i> , 2020, 3, 197.	4.4	46
69	Power-law correlated processes with asymmetric distributions. <i>Physical Review E</i> , 2005, 71, 025104.	2.1	43
70	Maternal-fetal heartbeat phase synchronization. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 13641-13642.	7.1	41
71	Magnitude and sign of long-range correlated time series: Decomposition and surrogate signal generation. <i>Physical Review E</i> , 2016, 93, 042201.	2.1	40
72	Early Detection of Sepsis—A Role for Network Physiology?. <i>Critical Care Medicine</i> , 2016, 44, e312-e313.	0.9	40

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73	Effects of coarse-graining on the scaling behavior of long-range correlated and anti-correlated signals. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2011, 390, 4057-4072.	2.6	39
74	New Class of Level Statistics in Correlated Disordered Chains. <i>Physical Review Letters</i> , 2004, 93, 176804.	7.8	35
75	Neuronal noise as an origin of sleep arousals and its role in sudden infant death syndrome. <i>Science Advances</i> , 2018, 4, eaar6277.	10.3	34
76	Complex patterns of abnormal heartbeats. <i>Physical Review E</i> , 2002, 66, 031901.	2.1	33
77	Network Physiology of Cortico-Muscular Interactions. <i>Frontiers in Physiology</i> , 2020, 11, 558070.	2.8	33
78	Three Independent Forms of Cardio-Respiratory Coupling: Transitions across Sleep Stages. <i>Computing in Cardiology</i> , 2014, 41, 781-784.	0.4	33
79	Long-range correlations in permeability fluctuations in porous rock. <i>Physical Review E</i> , 1996, 54, 3129-3134.	2.1	32
80	FLUCTUATIONS, NOISE AND SCALING IN THE CARDIO-PULMONARY SYSTEM. <i>Fluctuation and Noise Letters</i> , 2003, 03, R1-R25.	1.5	31
81	Heart Rate Sonification: A New Approach to Medical Diagnosis. <i>Leonardo</i> , 2004, 37, 41-46.	0.3	31
82	Critical Dynamics and Coupling in Bursts of Cortical Rhythms Indicate Non-Homeostatic Mechanism for Sleep-Stage Transitions and Dual Role of VLPO Neurons in Both Sleep and Wake. <i>Journal of Neuroscience</i> , 2020, 40, 171-190.	3.6	31
83	Frustrated two-dimensional quantum Heisenberg antiferromagnet at low temperatures. <i>Physical Review B</i> , 1992, 46, 8206-8213.	3.2	28
84	Phase transitions in the first-passage time of scale-invariant correlated processes. <i>Physical Review E</i> , 2012, 85, 011139.	2.1	27
85	Hippocampal and cortical communication around micro-arousals in slow-wave sleep. <i>Scientific Reports</i> , 2019, 9, 5876.	3.3	27
86	Time evolution of stochastic processes with correlations in the variance: stability in power-law tails of distributions. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2001, 300, 300-309.	2.6	26
87	Zipf rank approach and cross-country convergence of incomes. <i>Europhysics Letters</i> , 2011, 94, 48001.	2.0	26
88	Segmentation of time series with long-range fractal correlations. <i>European Physical Journal B</i> , 2012, 85, 1.	1.5	26
89	Pattern formation in sedimentary rocks: Connectivity, permeability, and spatial correlations. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1996, 233, 587-605.	2.6	25
90	Truncated Lévy process with scale-invariant behavior. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2001, 299, 154-160.	2.6	23

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91	Universal temporal characteristics and vanishing of multifractality in Barkhausen avalanches. <i>Physical Review E</i> , 2017, 96, 022159.	2.1	23
92	Non-equilibrium critical dynamics of bursts in $\hat{\alpha}$ and $\hat{\gamma}$ rhythms as fundamental characteristic of sleep and wake micro-architecture. <i>PLoS Computational Biology</i> , 2019, 15, e1007268.	3.2	23
93	$\hat{\alpha}$ Cells Operate Collectively to Help Maintain Glucose Homeostasis. <i>Biophysical Journal</i> , 2020, 118, 2588-2595.	0.5	21
94	ARCH-GARCH approaches to modeling high-frequency financial data. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 344, 216-220.	2.6	19
95	Universal spectral profile and dynamic evolution of muscle activation: a hallmark of muscle type and physiological state. <i>Journal of Applied Physiology</i> , 2020, 129, 419-441.	2.5	19
96	Impact of Stock Market Structure on Intertrade Time and Price Dynamics. <i>PLoS ONE</i> , 2014, 9, e92885.	2.5	18
97	Scaling laws and model of words organization in spoken and written language. <i>Europhysics Letters</i> , 2016, 113, 18002.	2.0	18
98	Oscillatory brain activity during acute exercise: Tonic and transient neural response to an oddball task. <i>Psychophysiology</i> , 2019, 56, e13326.	2.4	18
99	Modeling heart rate variability by stochastic feedback. <i>Computer Physics Communications</i> , 1999, 121-122, 126-128.	7.5	17
100	Quantum ferrimagnets. <i>Journal of Physics Condensed Matter</i> , 1991, 3, 2665-2677.	1.8	16
101	Time correlations and $1/f$ behavior in backscattering radar reflectivity measurements from cirrus cloud ice fluctuations. <i>Journal of Geophysical Research</i> , 2003, 108, n/a-n/a.	3.3	15
102	Correlated walks down the Babylonian markets. <i>Europhysics Letters</i> , 2010, 90, 18004.	2.0	15
103	Time Series Analysis and Forecasting. <i>Contributions To Statistics</i> , 2016, , .	0.2	14
104	Analysis of Sleep Fragmentation and Sleep Structure in Patients With Sleep Apnea and Normal Volunteers. , 2005, 2005, 2591-4.		13
105	Dynamical patterns of human postural responses to emotional stimuli. <i>Psychophysiology</i> , 2012, 49, 1225-1229.	2.4	13
106	Power-law correlations and coupling of active and quiet states underlie a class of complex systems with self-organization at criticality. <i>EPJ Web of Conferences</i> , 2020, 230, 00005.	0.3	12
107	Fractal and Multifractal Approaches in Physiology. , 2002, , 218-257.		12
108	Network Physiology in Aging and Frailty: The Grand Challenge of Physiological Reserve in Older Adults. <i>Frontiers in Network Physiology</i> , 2021, 1, .	1.8	12

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109	Patterns of spiral wave attenuation by low-frequency periodic planar fronts. <i>Chaos</i> , 2007, 17, 015109.	2.5	11
110	Ensemble of coupling forms and networks among brain rhythms as function of states and cognition. <i>Communications Biology</i> , 2022, 5, 82.	4.4	10
111	Decomposition of heartbeat time series: scaling analysis of the sign sequence. , 0, , .		9
112	Dynamic networks of physiologic interactions of brain waves and rhythms in muscle activity. <i>Human Movement Science</i> , 2022, 84, 102971.	1.4	8
113	Detection of obstructive sleep apnea through auditory display of heart rate variability. , 0, , .		7
114	Patterns of phase-dependent spiral wave attenuation in excitable media. <i>Physical Review E</i> , 2007, 75, 051923.	2.1	7
115	Model of the Dynamic Construction Process of Texts and Scaling Laws of Words Organization in Language Systems. <i>PLoS ONE</i> , 2016, 11, e0168971.	2.5	7
116	Spiral wave annihilation by low-frequency planar fronts in a model of excitable media. <i>Europhysics Letters</i> , 2009, 86, 18005.	2.0	6
117	Scale-invariant Aspects of Cardiac Dynamics Across Sleep Stages and Circadian Phases. , 2006, 2006, 445-8.		5
118	The New Frontier of Network Physiology: Emerging Physiologic States in Health and Disease from Integrated Organ Network Interactions. <i>MATRIX Book Series</i> , 2021, , 237-254.	0.2	5
119	Monofractal and multifractal approaches to complex biomedical signals. <i>AIP Conference Proceedings</i> , 2000, , .	0.4	4
120	Quantifying Heartbeat Dynamics by Magnitude and Sign Correlations. <i>AIP Conference Proceedings</i> , 2003, , .	0.4	4
121	Editorial: Fractal and Multifractal Facets in the Structure and Dynamics of Physiological Systems and Applications to Homeostatic Control, Disease Diagnosis and Integrated Cyber-Physical Platforms. <i>Frontiers in Physiology</i> , 2020, 11, 447.	2.8	4
122	Long-Range Dependence in Heartbeat Dynamics. <i>Lecture Notes in Physics</i> , 2003, , 339-372.	0.7	4
123	Spectral dynamics of muscle fiber activation in response to exercise and acute fatigue. , 2021, , .		3
124	First-Passage Time Properties of Correlated Time Series with Scale-Invariant Behavior and with Crossovers in the Scaling. <i>Contributions To Statistics</i> , 2016, , 89-102.	0.2	2
125	Signal processing in Network Physiology: quantifying network dynamics of organ interactions. , 2021, , .		2
126	Novel multiscale regulation in human motor activity. , 2003, 5110, 235.		1

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127	Quantifying financial market dynamics: Scaling law in rank mobility of Chinese stock prices. Finance Research Letters, 2021, 38, 101516.	6.7	1
128	STOCHASTIC APPROACHES TO MODELING OF PHYSIOLOGICAL RHYTHMS. , 2002, , .		1
129	Physiologic systems dynamics, coupling and network interactions across the sleep-wake cycle. , 2022, , 59-100.		1
130	Beyond 1/f: Multifractality in human heartbeat dynamics. AIP Conference Proceedings, 2000, , .	0.4	0
131	Finding hidden patterns in complex ventricular ectopy. , 0, , .		0
132	Generating power-law tails in probability distributions. AIP Conference Proceedings, 2001, , .	0.4	0
133	Electronic Delocalization in Finite One-Dimensional Correlated-Disordered Binary Solids. AIP Conference Proceedings, 2003, , .	0.4	0
134	Synchronization patterns in cerebral blood flow and peripheral blood pressure under minor stroke. , 2003, , .		0
135	Distributions and Long-Range Correlations in the Trading of US Stocks. , 2004, , 51-57.		0
136	FLUCTUATIONS, NOISE AND SCALING IN THE CARDIO-PULMONARY SYSTEM. , 2022, , 269-293.		0
137	Scale-invariant Aspects of Cardiac Dynamics Across Sleep Stages and Circadian Phases. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0
138	Editorial: Inference, Causality and Control in Networks of Dynamical Systems: Data Science and Modeling Perspectives to Network Physiology With Implications for Artificial Intelligence. Frontiers in Physiology, 2022, 13, .	2.8	0